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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,751	02/22/2002	Brian C. Banister	LSI-004-CIP	8423

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EXAMINER
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BURD, KEVIN MICHAEL

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/080,751	<b>Applicant(s)</b> BANISTER, BRIAN C.	
	<b>Examiner</b> Kevin M. Burd	<b>Art Unit</b> 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-10 and 12-46 is/are rejected.
- 7) ☒ Claim(s) 5 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. This office action, in response to the amendment filed 12/15/2005, is a non-final office action.

### ***Drawings***

2. The drawings were received on 12/15/2005. These drawings are acceptable.

### ***Response to Arguments***

3. Applicant's arguments filed 12/15/2005 regarding the rejections of the claims under 35 USC 112, second paragraph have been fully considered but they are not persuasive. The examiner disagrees with Applicant that further definition of the variables is not needed to make the scope of the claims clear to one of ordinary skill in the art. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). For example, Claim 14 discloses an equation without defining what the specific variables represent. Claims 15 and 17, which are dependent of claim 14, define the specific variables of the claims. This appears to imply that the variables stated in claim 14 can represent information other than the definitions stated in claims 15 and 17. For these reasons, the rejections of the claims are maintained and stated below.
4. Applicant's arguments, see pages 13-17 of the remarks filed 12/15/2005 with regarding the rejection of the claims under 35 USC 102(e) as being anticipated by

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Harrison et al (US 6,434,366) has been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejection are made in view of Dybdal et al (US 5,781,845) and Banister (US 6,952,455). In addition, new rejections under 35 USC 112, first paragraph is stated below.

### ***Claim Objections***

5. Claim 26 is objected to because of the following informalities: no sub-act is disclosed in claim 26 or independent claim 24. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 24-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claim 40 recites, in step d, "generating feed back based on comparing reception, irrespective of information describing particular transmit weighting vectors, during alternative periods...". MPEP 2173.05(i) states any negative limitation or exclusionary proviso must have basis in the original disclosure. If alternative elements are positively recited in the specification, they may be explicitly

excluded in the claims. See *In re Johnson*, 558 F.2d 1008, 1019, 194 USPQ 187, 196 (CCPA 1977) (“[the] specification, having described the whole, necessarily described the part remaining.”). See also *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff’d* mem., 738 F.2d 453 (Fed. Cir. 1984). The mere absence of a positive recitation is not basis for an exclusion. Any claim containing a negative limitation which does not have basis in the original disclosure should be rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. It is believed that the limitation stated above does not have basis in the original disclosure. Claims 25-40 are rejected due to dependence on claim 24.

7. Claim 46 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear where in the specification a computer program executable on a general purpose computing device (or storage medium) is disclosed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 6-8, 11, 14-18, 20-23, 27, 28, 30, 31 and 35-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These

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claims comprise variables that are not defined in the claims. A definition of these variables must be found in the claims to distinctly claim the subject matter which Applicant regards as his invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4, 19, 42, 43, 44 and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Dybdal et al (US 5,781,845).

Regarding claims 1-4 and 19, Dybdal discloses a method for using adaptive transmitters shown in figure 2 and 3. The adaptive transmitters implement a method of generating weighted transmitted signals with nulling in a CDMA communication system. The system comprises a transmitter and receivers (column 1, lines 24-34). Initial weights are set for the transmitter in 12a-12n. Processor 16 receives a feedback signal via receiver 30 in figure 2. The processor 16 comprises an adaptive algorithm to reduce the strength of the reflected component signal by varying the value of the adaptive weights (column 6, lines 39-42). Therefore, the algorithm decreases the value of the reflected components to maximize the power delivered to the proper receiver. The process of adapting the weights of the transmit array will continue.

Regarding claims 42-44, Dybdal discloses using adaptive transmitters shown in figure 2 and 3. The adaptive transmitters implement a method of generating weighted transmitted signals with nulling in a CDMA communication system. The system comprises a transmitter and receivers (column 1, lines 24-34). Initial weights are set for the transmitter in 12a-12n. Processor 16 receives a feedback signal via receiver 30 in figure 2. The processor 16 comprises an adaptive algorithm to reduce the strength of the reflected component signal by varying the value of the adaptive weights (column 6, lines 39-42). Therefore, the algorithm decreases the value of the reflected components to maximize the power delivered to the proper receiver. The process of adapting the weights of the transmit array will continue.

Regarding claim 46, Dybdal discloses using adaptive transmitters shown in figure 2 and 3. The adaptive transmitters implement a method of generating weighted transmitted signals with nulling in a CDMA communication system. The system comprises a transmitter and receivers (column 1, lines 24-34). Initial weights are set for the transmitter in 12a-12n. Processor 16 receives a feedback signal via receiver 30 in figure 2. The processor 16 comprises an adaptive algorithm to reduce the strength of the reflected component signal by varying the value of the adaptive weights (column 6, lines 39-42). Therefore, the algorithm decreases the value of the reflected components to maximize the power delivered to the proper receiver. The process of adapting the weights of the transmit array will continue. The processor 16 shown in the figures will calculate and set weight values according to a stored program.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 9, 10, 12, 13, 41 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dybdal et al (US 5,781,845) in view of Harrison et al (US 6,434,366).

Regarding claims 9, 10, 12 and 13, Dybdal discloses the method for using adaptive transmitters stated above in paragraph 9. Dybdal does not disclose calculating the transmitter weights according to channel estimates and a co-channel gain matrix. Harrison discloses a method of generating weighted transmit signals in a communication system. The system comprises a transmitter shown in figure 5 comprising a plurality of antennae. A weight computer 306 outputs an initial weight to the matched filters (column 8, lines 16-26) and these weights determine an initial impulse channel response between an antenna element and a receiver (column 4, lines 39-42). The channel impulse response is adjusted and according to the matrix shown in column 4, lines 38-67. The channel impulse response is determined by the feedback signal from the receiver and power is a component of the feedback signal (column 12, lines 8-16). It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the calculation of transmitter weights of Harrison into the adaptive transmitter method of Dybdal. The calculation of the impulse response allows



the system to average out noise but to be responsive to changes in the channel (column 3, lines 60-65).

Regarding claims 41 and 45, Dybdal discloses using adaptive transmitters shown in figure 2 and 3. The adaptive transmitters implement a method of generating weighted transmitted signals with nulling in a CDMA communication system. The system comprises a transmitter and receivers (column 1, lines 24-34). Initial weights are set for the transmitter in 12a-12n. Processor 16 receives a feedback signal via receiver 30 in figure 2. The processor 16 comprises an adaptive algorithm to reduce the strength of the reflected component signal by varying the value of the adaptive weights (column 6, lines 39-42). Therefore, the algorithm decreases the value of the reflected components to maximize the power delivered to the proper receiver. The process of adapting the weights of the transmit array will continue. Dybdal does not disclose calculating the transmitter weights according to channel estimates and a co-channel gain matrix.

Harrison discloses a method of generating weighted transmit signals in a communication system. The system comprises a transmitter shown in figure 5 comprising a plurality of antennae. A weight computer 306 outputs an initial weight to the matched filters (column 8, lines 16-26) and these weights determine an initial impulse channel response between an antenna element and a receiver (column 4, lines 39-42). The channel impulse response is adjusted and according to the matrix shown in column 4, lines 38-67. The channel impulse response is determined by the feedback signal from the receiver and power is a component of the feedback signal (column 12, lines 8-16). It would have been obvious for one of ordinary skill in the art at the time of

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the invention to combine the calculation of transmitter weights of Harrison into the adaptive transmitter method of Dybdal. The calculation of the impulse response allows the system to average out noise but to be responsive to changes in the channel (column 3, lines 60-65).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 22-26 and 32-34 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,952,455.

Although the conflicting claims are not identical, they are not patentably distinct from each other because initial values, though not expressly indicated as initialized, have an

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inherent beginning value. In addition, it would have been obvious to remove claimed components stated in the reference to minimize the complexity of the method.

### ***Allowable Subject Matter***

12. Claims 5 and 11 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Claims 6-8, 14-18, 20-23, 27, 28, 30, 31, 35-40 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

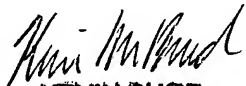
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Burd  
3/3/2006

  
**KEVIN BURD**  
**PRIMARY EXAMINER**